

CHARGE NUMBER : 1503

PROGRAM TITLE : Modified Smoking Materials

PERIOD COVERED: August 1-31, 1981

PROJECT LEADER: G. D. Keritsis

I. RCB STUDIES (J. W. Leik)^{1,2}

It was previously reported that the homogenization of production RCB slurries with a Gaulin homogenizer increases the tensile of the laboratory cast/dried RCB sheets by 35-40%, and that the addition of 2% NaCMC 7HF (DWB) to the homogenized slurry increases the sheet tensile by an additional 20-40%.¹ Hence, the study was repeated with stem free tobacco dust slurries and with slurries containing varying amounts of bright stems in place of burley stems.

The laboratory data indicates that the control sheet physicals (tensile, TEA, etc.) were matched by adding 3% of certain gums to stem free tobacco dust. The addition of 3% α -cellulose or a minimum amount of bright stems seemed to have little effect on tensile.² A few of these formulations are now being repeated prior to making any runs at the BL Pilot Plant.

II. WATER EXPANSION (H. H. Sun)^{3,4}

The WET studies with bright, burley, Oriental and MF fillers were continued in an effort to optimize the process. The studies indicate that a high degree of expansion is achieved when the tobacco filler, regardless of feed OV, reaches a "dry state" of less than 10% OV and preferably less than 6% OV for a duration of less than four seconds of exposure in the "dry state" at a tower temperature of >450°F.

The evaluation is continuing of the Westab WET (07/19/81 test) using uncased DBC bright. The test results indicate that this filler could be post-cased with a minimal CV loss of about 2-3 CV units (61 cc/10 g vs 59 cc/10 g). This technique was then used to produce blended cigarettes for an evaluation which is currently underway.

III. FUNDAMENTAL STUDIES

A. Denitration of Tobacco by Chemical Means (S. E. Wreen)⁵

Efforts are being made to scale up the process of denitrating tobacco with gaseous formic acid and developing means of recovering excess formic acid.

B. Selective Filtration of Smoke (N. B. Rainer)⁶

It has been found that certain types of granular carbons can adsorb small quantities of metallo-organic compounds which are either applied from solution to the granules or synthesized directly in an adsorbed state on the granules. Specially treated carbons activated in such a manner and utilized in PSP filters have been found to adsorb 80% of NO from cigarette smoke. Aging tests are in progress. Also optimization studies continue on metallo-organic compounds and the manner of granule treatment.

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In another study with permanganate filter granules it was learned that the optimum space fill level in a PSP filter is 100% for filter granules having 30/80 mesh size. When the granules are of a finer mesh size, such as 60/80, the optimum space fill is at about 80%.

C. Cellulase Treated Classed Tobacco (H. H. Sun, M. Shulleeta)^{7,8}

Earlier studies have shown that cellulase (*Trichoderma viride*) can degrade RKS into very fine, soft fibers which can easily be homogenized with a Waring blender. It was then thought that such a treatment could be applied to OTM to soften and degrade CT particles for an easier application to strip or RL. Such treatments were studied, and it was found that the treatment of a homogenized CT slurry with 4% (DWB) cellulase reduced the slurry viscosity to one-sixth of the control and that the treatment with 1% (DWB) cellulase reduced the homogenized slurry viscosity by 50%. The evaluation of these treatments will continue with Project 1307 personnel.

IV. REFERENCES

1. J. W. Leik Notebook Numbers 7395 and 7644.
2. J. W. Leik Notebook Number 7644, page 12.
3. H. H. Sun Notebook Number 7379, pages 147-152.
4. M. Shulleeta Notebook Number 7290, pages 109-125.
5. S. E. Wrenn Notebook Number 7621, pages 61, 64-70.
6. N. B. Rainer Notebook Number 7278, page 200.
7. H. H. Sun Notebook Number 7379, page 153.
8. M. Shulleeta Notebook Number 7290, pages 126-131.

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